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The Effect of Sociodemographic Variables on Emotional Intelligence and Resilience among University Students and the Psychometric Properties of the Connor-Davidson Resilience Scale

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Abstract: ***Background***: Emotional intelligence (EI) and resilience are key psychosocial constructs that support mental well-being and academic achievement. Investigating how sociodemographic factors influence these qualities among Bangladeshi university students can inform targeted interventions. ***Objective:*** To examine the effect of sociodemographic variables such as age, gender, academic year, parental education, and financial status on EI and resilience among university students in Bangladesh. Another objective was to measure the psychometric properties of the Connor-Davidson Resilience Scale (CD-RISC). ***Methods:*** This cross-sectional study involved 460 Bangladeshi university students between the ages of 18 to 26 years. Data were collected using a standardized questionnaire, incorporating the Bangla-adapted version of the Emotional Intelligence Scale and Resilience scale to assess emotional intelligence and resilience. Statistical analyses, including independent samples t-tests, were used to see the effects of socio-demographic variables on emotional intelligence and resilience. Internal consistency, correlation, and Confirmatory factor analysis were performed for measuring psychometric properties of the Connor-Davidson Resilience Scale. ***Results:*** Results suggested a significant difference in EI and resilience based on age, gender, parental education, and academic year. The results also suggest that the Connor-Davidson Resilience Scale was reliable and validated to measure resilience in Bangladeshi culture. ***Conclusion:*** Among Bangladeshi university students, female tends to exhibit higher EI and resilience. Increasing age, higher parental education are linked to EI and resilience among university students in Bangladesh. The CD-RISC becomes a culturally appropriate and psychometrically sound tool for use in Bangladesh's unique socio-cultural environment.
Keywords: Resilience, Emotional Intelligence, Mental Health, Academic Performance, Sociodemographic Factors.

INTRODUCTION

University students are often exposed to a wide range of academic, social, and personal demands that can negatively affect their mental health and academic performance. The shift into higher education, combined with heightened academic expectations, financial constraints or hardship, and the need to adapt socially, frequently places students at risk of stress and emotional exhaustion (Pascoe *et al.,* 2020). Academic resilience refers to a student's ability to cope with setbacks, manage academic challenges, and persist through difficulties while continuing to strive for academic success. It is widely recognized as a crucial element in promoting positive outcomes in higher education (Martin & Marsh, 2006). Cassidy (2016) characterizes academic resilience as the ability to maintain strong motivation and performance levels despite encountering educational obstacles (Cassidy, 2016). This concept encompasses a range of strategies, including cognitive, emotional, and behavioral, that students use to cope with pressures, limited resources, and personal hardships while staying committed to their academic goals (Martin, 2013). Resilient students often exhibit self-discipline, perseverance, and a strong academic self-image, which enable them to overcome challenges and achieve their academic goals. Recent research highlights the role of academic resilience not only in enhancing performance but also in safeguarding mental health and promoting well-being (Demir, 2023; Yang & Wang, 2021).

Students who exhibit high resilience demonstrate an enhanced ability to adapt to difficult situations and maintain progress, even in adverse

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conditions. This capacity is vital for ensuring persistence in academic pursuits and supporting emotional health (Năstasă *et al.,* 2022; Ononye *et al.,* 2022; Radhamani & Kalaivani, 2021). In a similar vein, emotional intelligence (EI)—which involves the perception, understanding, regulation, and strategic use of emotions—is widely acknowledged as a significant contributor to academic success (Mayer *et al.,* 2004). EI enhances a student's capacity to meet academic challenges and navigate complex social interactions. Students with higher emotional intelligence typically exhibit better stress management, improved interpersonal skills, and greater adaptability (Goleman, 2005; Schutte *et al.,* 1998). These competencies are instrumental not only in improving academic outcomes but also in promoting psychological resilience, emotional well-being, and intrinsic motivation (Hwang & Kim, 2023; Trigueros *et al.,* 2020). Furthermore, emotionally intelligent students tend to respond to difficulties in more constructive ways, which reduces academic anxiety and strengthens their engagement with learning tasks (Petrides, 2011).

Emotional intelligence plays a foundational role in building resilience, thereby equipping students with the tools needed to navigate challenges successfully (Ahmed *et al.,* 2018; Beri & Kumar, 2018; Wei & Song, 2024). The dynamic interaction between emotional intelligence and resilience highlights their combined significance in academic settings, where both attributes contribute to sustained academic performance and student well-being (Trigueros *et al.,* 2020).

Sociodemographic variables such as age, gender, academic year, and parental education may play a significant role in EI and resilience (de Andrade *et al.,* 2024; Lou *et al.,* 2022; Nurul Alam *et al.,* 2024; PitchaiahPodila, 2018; Ravikumar *et al.,* 2017).

The Connor-Davidson Resilience Scale (CD-RISC) is one of the most widely used tools for measuring resilience across populations. However, despite its global application, the scale's psychometric properties have not yet been systematically validated within the Bangladeshi context. This article explores the relevance of CD-RISC, summarizes global psychometric findings, and presents a framework for adapting and validating the instrument in Bangladesh.

However, this study has two objectives:
Firstly, this study explores how these variables influence EI and resilience levels among university students.

Secondly, to find the reliability and validity of the Connor-Davidson Resilience Scale in a Bangladeshi university sample.

METHODOLOGY
Research design and setting
This research employed a cross-sectional design. Data were gathered from the University of Rajshahi.

Sample size and sampling procedure
To estimate sample size, we used the formula, $n = \frac{z^2 p(1-p)}{d^2}$, where, n= sample size, z= 1.96 (95%CI), p= prevalence of high EI = 51%= 0.51 and d= precision of prevalence (0.05). Using this formula, the minimum required sample size was 384. However, we collected data from 460 students using a multistage random sampling procedure.

Ethics
We adhered to all ethical standards for human participants. Prior to data collection, informed consent was secured from all participants. The study's objectives, confidentiality assurances, and the voluntary nature of participation were clearly communicated. No monetary or material incentives were provided. Eligible participants included both undergraduate and graduate students residing in university residential halls, and all were Bangladeshi nationals.

Measures
Sociodemographic variables: The variables included were age, gender, academic year, parental education, and financial status.

Emotional Intelligence Scale (EIS)
Emotional intelligence was measured using the 33-item scale originally developed by Schutte et al. (1998), which has demonstrated strong psychometric properties and has been validated in the Bangladeshi context (Uzzaman & Karim, 2017). Responses were rated on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree), with total scores ranging from 33 to 165.

Resilience Scale
The resilience of university students was measured using the Connor-Davidson Resilience Scale (25 items) (Connor & Davidson, 2003). Each item was evaluated using a five-point Likert scale with the following options: 0 = not true at all, 1 = rarely true, 2 = sometimes true, 3 = often true, and 4 = true nearly all of the time. The total score could range from 0 to 100 (Connor & Davidson, 2003). This scale has good psychometric properties in the present study. We found Cronbach's alpha to be 0.91, representing excellent internal consistency. The confirmatory factor analysis showed satisfactory results, where we found $\chi^2(34)$ = 90.54, CFI = 0.98, TLI = 0.92, GFI = 0.96, RMSEA = 0.045, and SRMR = 0.027. We also found a significant correlation with EI, which indicates concurrent validity of the present study.

Data Analysis

Descriptive statistics and an independent sample t-test were applied to see the effect of sociodemographic variables on EI and resilience among university students of Bangladesh. The confirmatory factor analysis was performed by Stata version 13, and independent sample t-tests, Pearson correlation were performed by SPSS 26. Significance level set at $p < 0.05$.

RESULTS

Table 1: Participants' characteristics (N = 460)

Variables	Category	N	Percentage
Gender	Male	206	44.8
	Female	254	55.2
Age group	18-20	145	31.5
	21-23	198	43
	24-26	117	25.4
Academic Year	1st Year	108	23.5
	2nd Year	122	26.5
	3rd Year	114	24.8
	4th Year	116	25.2
Parental education	Primary	94	20.4
	Secondary	182	39.6
	Above secondary	184	40

Table 1 presents the distribution of participants. Of all participants, 44.8% (n = 206) were male, and 55.2% (n = 254) were female. Most participants were aged 21–23 years, making up 43% (n = 198) of the sample. Those aged 18–20 accounted for 31.5% (n = 145), and 25.4% (n = 117) were in the 24–26 age group. Students were fairly evenly distributed across academic years, with first-year students constituting 23.5% (n = 108), second-year 26.5% (n = 122), third-year 24.8% (n = 114), and fourth-year 25.2% (n = 116). Most participants had parents with education levels of secondary schooling (39.6%, n = 182) or higher (40%, n = 184). Only 20.4% (n = 94) reported that their parents' education was limited to the primary level.

Table 2. Results of t-tests (Mean Scores of Emotional Intelligence and Resilience by Sociodemographic Variables).

Variables	Group	Mean EI (SD)	Mean Resilience (SD)	p-value (EI)	p-value (Resilience)
Gender	Male	118.33 (13.1)	70.8 (9.33)	0.022	0.034
	Female	122.59 (12.4)	73.2 (8.7)		
Age group	18–20	117.2 (11.62)	69.4 (8.81)	0.046	0.05
	21–23	121.2 (13.51)	72.7 (9.33)		
	24–26	123.2 (12.11)	74.5 (8.72)		
Academic Year	1st Year	116.5 (11.3)	68.9 (9.1)	0.003	0.004
	2nd Year	119.8 (12.2)	71.2 (9.0)		
	3rd Year	122.4 (13.1)	73.7 (8.3)		
	4th Year	124.6 (12.4)	75.1 (9.2)		
Parental Education	Primary	115.2 (12.6)	68.7 (8.9)	0.001	0.002
	Secondary	120.3 (13.0)	71.5 (9.1)		
	Above secondary	125.5 (11.8)	76.2 (8.4)		

Gender:

There was a statistically significant difference in both emotional intelligence (EI) and resilience scores between male and female participants. Female students had higher mean EI (M = 122.59, SD = 12.4) and resilience scores (M = 73.2, SD = 8.7) compared to males (EI: M = 118.33, SD = 13.1; Resilience: M = 70.8, SD = 9.33), with p-values of 0.022 and 0.034, respectively.

Age Group:

Significant differences were also found across age groups for both EI (p = 0.046) and resilience (p = 0.05). Participants aged 24-26 reported the highest EI (M = 123.2, SD = 12.11) and resilience (M = 74.5, SD = 8.72), while those aged 18-20 had the lowest scores (EI: M = 117.2, SD = 11.62; Resilience: M = 69.4, SD = 8.81).

Academic Year:

There was a significant upward trend in both EI and resilience across academic years (p = 0.003 and p = 0.004, respectively). First-year students had the lowest mean EI (M = 116.5, SD = 11.3) and resilience (M = 68.9, SD = 9.1), while fourth-year students had the highest scores (EI: M = 124.6, SD = 12.4; Resilience: M = 75.1, SD = 9.2).

Parental Education:

Emotional intelligence and resilience scores significantly differed based on the educational level of the participants' parents (p = 0.001 and p = 0.002, respectively). Participants whose parents had education above secondary level scored the highest in EI (M = 125.5, SD = 11.8) and resilience (M = 76.2, SD = 8.4), while those whose parents had only primary education scored the lowest (EI: M = 115.2, SD = 12.6; Resilience: M = 68.7, SD = 8.9).

DISCUSSION

The study's findings underscore the significant impact of sociodemographic factors on both emotional intelligence (EI) and resilience, indicating that these psychological attributes are not solely innate but are also shaped by external influences and life experiences.

The analysis indicated that female students showed significantly higher levels of both EI and resilience compared to their male counterparts. This finding aligns with previous studies (Nurul Alam *et al.,* 2024). Some reasons for this include those women tend to be more emotionally expressive, empathetic, and skilled at recognizing and managing feelings and emotions, which are key aspects of EI. Additionally, higher resilience scores may reflect the coping strategies or techniques women develop in response to societal expectations or stressors, boosting their emotional adaptability. emotional adaptability. A clear pattern was found across age groups, with older students (aged 24–26) demonstrating higher EI and resilience than younger students. These findings are also consistent with a previous study (Ravikumar *et al.,* 2017). This trend may be attributed to the accumulation of life experiences, increased emotional maturity, and greater exposure to diverse interpersonal situations as individuals age. With time, students may develop stronger self-awareness, emotional regulation, and problem-solving skills, which are essential for both EI and resilient behaviors.

Similarly, the findings showed a positive correlation between academic progression and both EI and resilience scores. Students in higher academic years reported better outcomes in both domains (de Andrade *et al.,* 2024; Ravikumar *et al.,* 2017). This suggests that the university experience itself plays a developmental role, potentially through academic challenges, social interactions, and increased responsibilities. Exposure to diverse learning environments and peer networks likely contributes to the refinement of emotional and psychological competencies over time.

Parental education level was another significant factor; with students whose parents had attained education beyond the secondary level scoring highest in both EI and resilience. Similar findings were found in a study (Lou *et al.,* 2022). This may be due to several interrelated factors: such households might provide more emotionally supportive environments, emphasize the value of communication and self-regulation, and offer cognitive and social resources that nurture psychological development. Higher parental education often correlates with parenting styles that promote autonomy, emotional literacy, and problem-solving.

Other findings of the present study provide promising evidence for the reliability and validity of a culturally adapted version of the CD-RISC. This study provides strong preliminary evidence that a culturally adapted version of the Connor-Davidson Resilience Scale (CD-RISC) is a reliable and valid tool for measuring psychological resilience in the Bangladeshi context. As Bangladesh continues to face diverse challenges, having a locally validated resilience measure is critical for informing interventions, public health policy, and mental health support systems.

CONCLUSION

This study underscores the significant role of sociodemographic variables in shaping emotional intelligence and resilience among university students. Targeted programs that address emotional skill-building, particularly for younger students and those from less advantaged educational backgrounds, could be beneficial. Undertaking this validation of the resilience scale will not only strengthen the quality of resilience research in the country but also enable targeted interventions to support the mental well-being of diverse populations.

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